STATINTL

cc:

File

August 3, 1961

STATINTL

Central Intelligence Agency

STATINTL

Washington 25, D. C.

STATINTL

Attention:

Subject: Contract No.

STATINTL

Gentlemen:

COPY

During a discussion on July 20, 1961 with your technical personnel concerning the above subject contract, it became apparent that the requirement for the 2:1 Reduction Lens on contract has been projected forward to a future planning period. Because of this projection, it was agreed that further effort relative to delivery of hardware would be discontinued and that all additional activity would be directed toward documentation of design accomplishments in such form as to insure their maximum value and utility to the government.

To enable this contractor to perform in accordance with the modified objectives, it will be necessary to re-define the scope of the subject contract to exclude hardware and to require the following design data pertinent to the 16" Focal Length F/2.0 Reduction Lens:

(a) Detailed manufacturing drawings covering optical elements and system.

(b) Complete tolerance analysis.

(c) Outline drawing covering suggested lens housing and mounting.

(d) Report covering contractor-sponsored film-aperture-contrast study.

(e) Final engineering report.

Perhaps the following brief description of the above items may prove helpful.

(a) Engineering sketches will be converted to standard manufacturing drawings from which any qualified optical producer should be able to produce a 16 F/2.0 2:1 Reduction Lens meeting the specifications imposed by the subject contract.

(b) The tolerance analysis that we propose to supply will assume the form of a table of coefficients which will serve as a basis for establishing fabrication techniques compatible with inherent probable errors in manufacture, fabrication and assembly. Secondarily, it will serve to establish tolerances relative to raw glass and glass fabrication.

(c) The outline drawings for hardware will reflect considerations aimed toward insuring the most advantageous alignment techniques and maximum utilization of the modular concept which the optical design offers.

(d) The film-aperture-contrast study which this contractor is presently making will be expanded to provide for complete analysis of the 2:1 Reduction Lens. It will describe the function of resolution with respect to "f" number utilizing variable contrast targets.

(e) The final Engineering Report will include a historical treatment of the entire program. Also, it will describe the capabilities of the design in its present 2:1 form, as well as the potential it offers to satisfy additional applications with simple scaling effort.

All of the above effort will be required prior to producing a lens and expenditure of this effort, while the data is fresh can be accomplished at a very small fraction of the cost which will be required in the future.

Items (d) and (e) will be supplied at no cost to the government. Costs for items (a) and (c) which will be performed by our Mechanical Engineering Department and the cost of item (b), to be effected by our Optical Engineering Department, together with actual costs incurred to date, comprise the total cost of the contract in its proposed revised form. A summary of our price analysis is presented below:

STATINTL

[redacted]

We estimate a total of eight (8) weeks after authorization are necessary to finalize and deliver the remaining phases of our contract in accordance with the revised scope.

While we regret, very much, that circumstances preclude completion of this program to the extent that hardware is the end product, we are extremely proud of our design accomplishment and very grateful for the opportunity that our contract afforded to this end. A lens incorporating our design promises to offer performance far beyond present-day lenses.

We shall look forward to receiving your comments.

STATINTL

Very truly yours,

[redacted]

ARF:mll

b. Image Quality Meter. A major problem area exists with this item in that no quantitative standards have ever been established for film resolution or acuitance. I believe this should be an item of extreme interest to NBS, but no interest has been generated at the working level. Without such standards, the machine calibration will be arbitrary and of prime benefit on only a comparative basis. I suggest a higher level approach to NBS to instill interest at the top echelon, the results of which should then be reflected on a practical basis. [redacted] will propose some changes to further improve the machine. 25X1A in the form of viewing optics, electrical threshold gates and filters, which are not presently specified. Delivery, without the additional changes, could be as early as 20 August 1961. 25X1A

c. Image Enhancement Device. Will be ready for testing about 1 September, and delivery about 15 November 1961. The machine is presently limited to material of maximum quality of 80 lines per millimeter. This could be doubled, they say, by non-major circuitry changes and a new lens. They will propose this, including the specifications for the new lens. [redacted] 25X1A will have spent their entire [redacted] by 6 August 1961. To get 25X1A them to the 15 November delivery date will require another overrun to the amount of abou[redacted]. This is caused by the extensive check-out procedures anticipated. The contracting officer had not been notified as of 19 July because they were waiting for me to arrive at the plant.

25X1A

25X1A 6. [redacted]

a. Multiple Image Correlator. Still scheduled for delivery about 18 August 1961.

b. Edge and Line Detector. Still scheduled for delivery about 20 October 1961. Both items in fabrication at present, no problems being encountered or anticipated. 25X1A

25X1A 7. [redacted] Discussed with [redacted] the proposed down-
ward change in scope of contract to allow delivery of only the lens design. 25X1A
They are working on a set of tolerance specifications which I feel should be a part of the design if it were to be used for manufacture by other than [redacted] This will delay the design by about six to eight weeks. No indication of additional cost, though some small amount may be incurred.
25X1A Met Messrs. [redacted] the lens designers.

25X1A 8. [redacted] Two prototype items are
still scheduled for delivery before 1 September 1961. [redacted] will make 25X1A
performance inspection about 15 August 1961. We should get our sensitive
25X1A light meter back from TSD and lend to [redacted] so that he can run foot-
25X1A candle tests on the screen. Contract for the production items will be
amended subsequent to [redacted] approval, with [redacted] of the prototype.
25X1A [redacted] will work with [redacted] on readout code and format for the
25X1A measuring readers and furnish to [redacted] Projected deliveries:

25X1A 25X1A